true-i

Vehicle Blackbox HMBS-200

USER MANUAL

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Caution : Any changes or modifications in construction of this device which are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

NOTE : This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, any cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

true-i

Disclaimer

Please read the following "TERMS OF USE" before you use the device.

TERMS OF USE

1. Device operation

Hanman Technology is not liable for any compensation or legal responsibility of unexpected device malfunction or loss of important data at any instance. Please read through whole user manual including safety guidelines and operation. HMBS-200 blackbox is designed to record video before and after events at normal operation condition; however, the blackbox does not guarantee video record for all events at any conditions.

2. Product abuse

Hanman Technology is not liable for any compensation or legal responsibility of individual, privacy, copyright infringement that arise through user abuse by taking inappropriate video or audio. In addition, Hanman Technology is not liable for any compensation or legal responsibility of product damage or personal injury that arise through use of the device in an environment not defined by the product use guidelines and spec.

3. For safe driving

Please park your vehicle at a safe place before operate the device. Hanman Technology is not liable for any compensation or legal responsibility of vehicle accidents that caused by operating the device when vehicle was in motion.

4. Device specification change

Product spec, software, user manual and/or others related to the product are subject to change without prior notice.

By opening the plastic wrap of the device, user has agreed to the all terms as outlined above. For any reason user does not agree the above mentioned, please do not open the device wrap and return the device to where the product was purchased from.

Safety Guidelines

For your safety and to protect the device from mishandling and through unintended incident, please read and follow instructions as outlined below.

Do not open, repair and/or make any change to the device
It can lead to system malfunction or defects which Hanman Technology will not be liable for.

Do not use water or flammable substance when cleaning the device.
It can cause system defect as well as potential fire or electronic short circuit.

Do not apply intentional shocks or insert substance into the device.
It can cause ststem defect or fire and/or electronic short circuit.

Please keep the camera lens clean and free of any obstacles within the lens' viewing angle, to obtain clean and precise video during the recording.
It is suggested not to place objects near the blackbox and windshield as they can be seen in the video through reflection from the windshield.

Please check and reposition the device when it is exposed to extreme shocks or vibration for a period of time.
Device will not record appropriate videos if the orientation of blackbox is out from user's intention or holder is loose due to the extreme shocks or vibration. In this case, user shall park the vehicle at safe place for correction.

Recording of video quality may be affected for vehicle having heavily tinted windshield.
Please check the windshield condition before installing the device.

Please use the power cable supplied for device power from vehicle and power supply shall not exceed indicated voltage range in the specification.
Using other cable aside from cable supplied, or attaching the device to a wrong power supply can lead to system defect/malfunction and can cause fire.

Please do not place any other device or object in front or top of the device after installation.
GPS signal may be hindered or affected when obstacles are placed along the signal path or sun protection film is installed on windshield.

Please take note that a video may not be recorded correctly when driving through tunnel, under high-beam from other side of the road, against the direct sunlight and during the night.

Do not operate or look at the device when driving.
It can lead to unwanted vehicle accident.

Please take note that under extreme shock, the device may not record video by device breakdown.

Box Contents

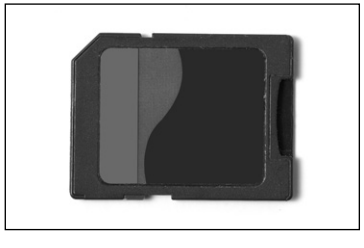
■ **Main Device**

■ **Holder**

■ **Power Cable**

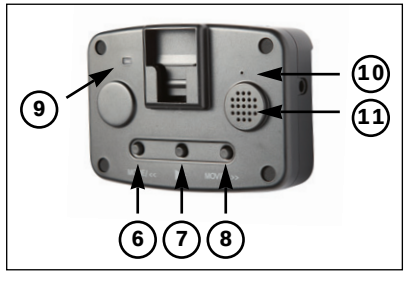
■ **USB Cable**

■ **SD Memory Card(2GB)**



■ **User Manual**

Device Features



① Power Input
② SD memory card slot
③ AV-OUT
④ Power button
⑤ USB slot
⑥ Mode button (blackbox mode / playback list backward)
⑦ Play button (play / stop blackbox event video)
⑧ Movie button (continuous record / playback list forward)
⑨ Status LED
⑩ Microphone
⑪ Speaker

1. Camera Module
- VGA (640x480) CMOS sensor and F/# 1.8 hi-end lens with 160.5°viewing angle (121°horizontal, 88°vertical)
- 15fps video record speed at daylight/night/parking mode

2. G-Sensor
- Max 8G measuring capability at forward/backward, up/down and left/right direction.
- Max 100 point of measurement data per second for more accurate record during accident/event.

3. GPS
- SirfStar III supported. Provide Longitude/Latitude/speed/direction/altitude information.
- Capable of tracking actual location of event/accident by connecting to local road/street map information.

4. Internal and external memory
- 1GB internal NAND flash memory. Able to support SD/SDHC memory card.
- Records all event/accident into built-in internal memory for more reliable data record.
- All event/accident information can also automatically be saved into external memory card.

5. Video/Audio output
- Can link to external video/audio devices with A/V IN, e.g. car navigator (Not included) using built-in AV output socket.

6. Built-in Emergency back-up battery
- With Lithium-polymer battery built-in, Can record event/accident even without power supply from external power source.
- Maximum 10min battery life (after fully charged)
- Battery protection through built-in thermal sensing capability.

7. Built-in internal speaker
- 0.4W speaker for event alarming/sound

8. USB Mass storage device
- For file transfer to PC from built-in 1GB internal memory through PC USB slot. Can be used as external memory device.

Technical Details

9. Compact and Light weight
- Compact : 77mm (H) x54mm (V) x18mm (T) and 33mm (incl. lens and holder).
Lightweight : less than 100g (incl. holder)

10. Event record mode
- Record total 40sec of video/audio/acceleration/GPS information before/after event at 15fps

11. Continuous record mode
- Max 25 fps video and 192kbps mono audio record capability using MPEG4 codec
- User configurable record time length

12. Parking monitoring mode (Surveillance mode)
- Can monitor events during parking mode when continuous power is available (vehicle power)
- Low power consumption (less than 1W) by build-in Special power saving feature
- Can record total 40sec video/audio/acceleration information before and after event or when motion is detected on the camera viewing span/angle.
- Built-in power monitoring feature and auto power cut-off to prevent full vehicle battery discharge.
- Can interchange automatically between event record mode and parking monitoring mode.

13. Emergency event recording control button
- Link available for external emergency control button (not provided, optional)
- Can record total 40sec video/audio/acceleration/GPS information through internal record button or external emergency button (required optional emergency recording button).

14. Built-in video/audio player
- Can play video/audio using its built-in player through AV output socket.
- Can link directly to display device or GPS navigator through AV input socket.
- Can be readily displayed on display device or GPS navigator's monitor screen without PC.

1. How to attach device holder

Attach device holder on the windshield facing user. Make sure that the holder does not block or obstruct the camera lens viewing angle. Once proper location is found, user can easily attach the holder onto the front windshield after removing the protection layer from 3M's tape.

2. How to mount device to the holder

When attaching holder to the main device, please tilt and push in the holder to the device as shown in the picture below. The device has a locking mechanism to keep the holder in place. Please be warned that the holder or device can be damaged when used with excessive force.

Step 1

Align the device to the device holder.

Step 2

Tilt the device before insert

Step 3

Slide in the device. User will be able to feel the device is locked onto the locking mechanism.

Step 4

Slide in the device to fully lock the device in.

Device installation

3. How to detach device from holder

When detaching the device from the holder, user should tilt the device slightly. After the holder is tilted, user should use his/her thumb to hold on to the front of the device and use your index finger to push the device down from the holder as shown as in the picture below:.

Step 1

Place your index finger on top and user use your thumb to support the holder as shown in the picture.

Step 2

Push with your index finger downward and thumb to support.

Step 3

After it passes through the first locking mechanism tilt the device as shown.

Step 4

You can now successfully remove the device.

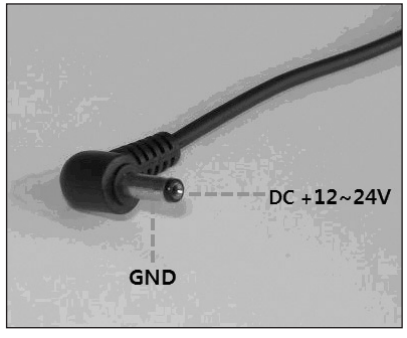
4. Adjustment of camera angle

Using provided 2 directional holder, the device lens viewing angle can be adjusted. User can find the desirable viewing angle and rotate the knob clock-wise to fix the viewing angle. If viewing angle requires new adjustment, rotate the knob counter clockwise to release the angle.

5. Plug-in of power cable

Use only the cigarette power cable provided. User must use cigarette power cable for power supply from vehicle's cigarette lighter socket. For continuous power supply, user will need to detach cigarette converting plug and attach the cable to appropriate power supply source in the vehicle.

※ **Caution:** User must take responsibility for any device defect or malfunction from connecting power cable with wrong polarity. For appropriate power cable installation, please consult with an experience automobile mechanics or professionals as the power supply can vary from vehicle to vehicle.



1. How to insert/removing SD memory card

Device must be turned off before inserting or removing SD card from the device.
When inserting SD card : Push the SD memory card into SD memory slot on the side of the device until a click is heard or felt through hand.
When removing SD card : Push the SD memory card further into SD memory slot. SD memory card will automatically be pushed out enough for user to hold and pull the card out from the slot completely.
※ **Caution:** Do not apply too much force when pushing the card into slot or inserting the card. User will take responsibility for device malfunction or defect due to user mishandling.

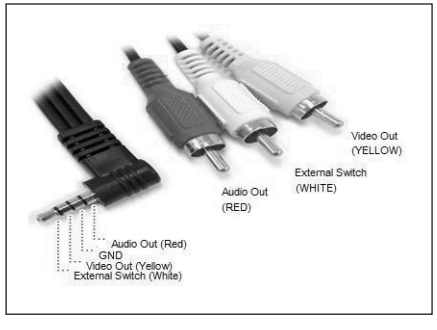
2. Connecting or removing USB cable

User must connect USB cable into the device before attaching the device to PC. When attempting to detach the USB cable, user has to detach the USB cable from PC first before removing the cable from the device.

3. Connecting AV out cable.

The AV out socket is located at the side of the device. The cable is known as 4pole 3.5 Stereo to 3RCA cable. Yellow plug is for video, red for audio and white for external emergency recording button. User can use AV cable when external trigger is needed.

※ **Caution:** Use only standard AV cable as specified in the above. Use of non-complied AV cable will cause damage to the device. User has to take responsibility for device damage or malfunction by use of inappropriate AV cable.



1. Power ON/OFF

① Power on

Device activates itself when the power is connected. In addition, device activates with its internal battery by pressing device power button, even when it is not connected to external power supply (e.g. vehicle battery power supply). In this case, no other feature other than video/audio player will be enabled.

② power off

When power is disconnected, device will automatically be deactivated after few seconds. The device can also be deactivated by pressing device's power button for 2 seconds or longer. During continuous power supply mode from corresponding vehicle, device will monitor vehicle's battery level and deactivates itself when the battery drops below specified voltage level. Similarly, devices will also deactivate itself when it detects low battery on built-in battery power supply mode. The green and red LED will blink in turns fast before it turns off completely.

※ **How to turn off the power manually:** User can deactivate device manually by pushing power button and hold for more than 5 seconds. Recommended not to deactivate device manually when the device is recording the event.

2. Blackbox Mode

① Event record Mode

Red lighted LED signals that the blackbox is in event record mode. When event such as specified acceleration or impact is detected on its corresponding vehicle, 20sec video/audio/accel/GPS info is recorded each before and after the event. During event recording interval, red LED will be flickered and it will go back to stable RED LED again when the record is completed.

② Parking monitoring mode (Surveillance mode)

Parking monitoring mode activates with GREEN LED lighted when pressing "MODE" button continuously until beep sound. In this parking monitoring mode, 20 secs video/audio/accel/GPS info will be saved when shock is detected or visual motion is detected on the camera viewing span/angle. During this record interval, the LED light will be flickered and will activate again when record is completed.

③ Mode interchangeability

Can interchange event (shock) record mode and parking monitoring mode by pressing "MODE" button continuously until a beep sound is heard. User can recognize each mode by LED lighted color. Depending on car's condition, device will automatically set its record mode.

※ **Caution:** Please check the device mode LED before you are driving or parking the vehicle. Device may not interchange modes automatically in certain circumstance. You may set appropriate mode by pressing the "MODE" button.

④ Manual record

In any mode, user can record 20 sec of video/audio/accel/GPS info by pressing any one of three buttons or using external control button(optional).

3. Continuous record mode

Continuous record mode will be activated with orange LED flashing when pressing "MOVIE" button continuously until beep. Depending on user configuration, MPEG4 quality video/audio can be recorded for user configured period of time until it's completed and repeat record again. Event record mode can be reverted back by pressing "MODE" button continuously again and deactivates the continuous record mode.

※ **Caution:** SD(External) memory card must be inserted before activating continuous record mode as it can only record into external memory card.

4. Blackbox File viewing/playing Mode

① Connect AV cable into device's AV-OUT and external video/audio device at its appropriate AV socket. Please use only standard AV cable as defined in this manual.

② Blackbox events will be played through its built-in video/audio player by pressing ""►" player button on the blackbox with small button beep along with red and green LED flashing back and forth continuously.

③ Prior or next blackbox file can be played by pressing "<<" or ""»" button during file viewing/playing mode.

④ Event recode mode can be reverted back by pressing "►" button continuously until beep and deactivate file viewing/playing mode.

5. MPEG4 file player

MPEG4 file codec is not included. Please check our website http://www.true-i.com for more information.

6. USB memory mode

① Device can be turned into USB memory device by connecting USB cable (provided) onto device' and PC's USB port. At this event, orange LED will be turned on.

② Device will be recognized as USB memory device by PC.

③ When in USB memory mode, 1GB of internal memory can all be used.

④ USB memory mode can be deactivated automatically by disconnecting USB cable from its device.

Firmware Upgrading Procedures

1. Download and save the latest firmware available from “Download Center” in www.true-i.com to user defined folder or an SD card.
2. Unzip the downloaded file to uncompress. User will see the files named “hmbs200.bin” and “setup.hms” as successful unzip of the downloaded file.
3. Copy and paste the files into SD card if user saved the files in a PC or other storage device.
4. Remove the power supply cable from device and make sure that the device power is completely turned off.
5. Insert the SD card with the downloaded files
6. Connect back the power supply cable to device
7. ORANGE LED will be turned on and System will strat upgrading the firmware automatically.
8. Updating the firmware may take up to 1 minutes and wait until system reboots the device and RED LED will be turned on.
9. If firmware is updated successfully to the device, the “hmbs200.bin” file will be automatically deleted from SD card and device will create “BLACKBOX” and “MOVIE” folders.

※ **Caution**: DO NOT TURN OFF THE POWER SUPPLY AND DO NOT PRESS ANY BUTTONS WHILE UPGRADING THE FIRMWARE.

true-i PC Viewer

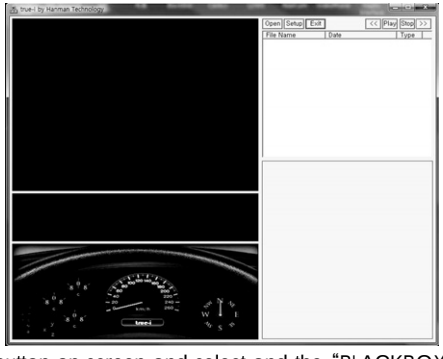
1. Installation

Save and unzip “true-i.zip” file from SD card provided to a user defined folder. From the uncompressed files, double click to run “true-i.exe” to start true-i viewer.

※ **Note:** For the latest software update, please check the website at www.true-i.com.

2. How to use true-i Viewer

Once the program is executed, true-i viewer is displayed on the PC screen as below:



Click “OPEN” button on screen and select and the “BLACKBOX” folder from SD card or True-I device attached to the PC using USB cable.

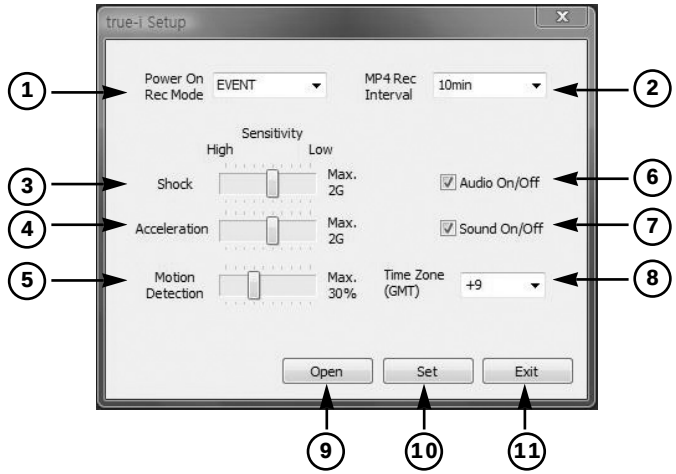
Clicking a file in “BLACKBOX” folder as shown on the screen shot below, the true-I Viewer will open and play the file recorded.

On the bottom of video screen panel, time, speed and shock values will be displayed.
Directly below the video screen panel, amplitude acceleration/shock will be displayed before and after the event recorded.
And the left bottom of true-i Viewer screen, a simulated cockpit is displayed with vehicle's speed, direction and acceleration information.

Actual footage of event will be displayed on the Google map when the PC is connected to the internet.
※ **Caution:** The map will not be displayed when PC is not connected to the internet or valid GPS data is not recorded during the event.

3. Viewer Configuration

User can configure true-i blackbox by pressing "SETUP" button located on the upper right side of the viewer.
① Select blackbox recording mode. Select "Event" and configure record event mode to user defined shock level, whereas, "MPEG4" configure continuous record mode.
② Select "MPEG4" mode and configure recording time interval. For example, choosing "10min" on the pull down menu will allow device to save every 10mins during continuous record mode.



③ Shock level can be adjusted. If the accelerator value is selected too high, device would not be able to detect shock needed for appropriate event record. Likewise, selecting very low shock level will allow device to record even a small shock event. Therefore, user is suggested to find an appropriate level to user's need.
④ Acceleration level can be adjusted. Define the level of acceleration or deceleration that device will detect.
⑤ Motion detection level can be adjusted. Setting level maximum will focus object close to the device lens, whereas setting the level minimum can detect objects farthest away from the device viewing angle. The motion detection level should be set appropriately to user's environment.
⑥ Configure audio record of the device.
⑦ Turns on and off sound.
⑧ Set the time zone of your country.
⑨ Load blackbox configuration file.
⑩ Save blackbox configuration file.
※ **Caution:** The configuration file name must be "setup.hms" and saved to root directory of a SD memory card. Otherwise, configuration changes cannot be reflected in your blackbox.
⑪ End configuration window.

Specification

Camera	Image Sensor	CMOS VGA
	Field of View, F/#	D:160.5˚, H:121˚, V:88˚,F/#:1.8
Voice (Mic)		192 kbps Mono
G Sensor	Sensor	3 Axis up to 8G
	Sampling period	100 Hz
Event Record	Resolution	VGA(640×480) fixed 15 fps
	Recording time	Max. 40sec per event
User Record	Resolution	MPEG4 VGA(640×480) Max. 25fps
	Recording time	Set by User
Parking Surveillance	Resolution	VGA(640×480) fixed 15 fps
	Detection by	Motion & Impact
	Recording time	Max. 40sec per event
GPS		SirfStar III
On-Board Internal NAND Flash Memory		1 GB
External Memory Card Support		SD / SDHC
USB Interface		USB 2.0
Speaker		0.4 W Mono
On-Board Backup Battery		Lithium-Polymer 90mAh
Video/Audio Output		NTSC/PAL, Mono
External Switch for Recording		2 pin connector
Power Supply		12 ~ 24 V
Power Consumption		< 1W @Surveillance mode
Operating Temperature		-20 ~ 70℃

※ The specification is subject to change without prior notice.

제품보증서

제 품 명	true-i Vehicle Blackbox	모 델 명	HMBS-200
구 입 일	20 년 월 일	제조번호	
구입대리점		보증기간	구입일로부터 1년

제품 보증에 대하여

●한맨테크놀로지 제품을 구입해 주셔서 감사합니다. 당사는 소비자 피해보상 규정(재정경제부 고지 제2000-21호)에 따라 다음과 같이 제품에 대한 품질 보증을 실시합니다.

●제품보증서에 구입 일이 표기되어 있지 않은 경우 제품 내 기록된 제조번호에 의한 제조일자에 1개월을 합하여 제품보증기간으로 산정합니다.

●고장 발생 시 한맨테크놀로지 또는 가까운 서비스센터를 방문하여 보증서를 제시해 주시고 수리 의뢰하여 주십시오.

※ 이 보증서는 대한민국에서만 유효하며 재발행하지 않으므로 잘 보관하여 주십시오.

	소비자 피해 유형	보증내역	
		보증기간 이내	보증기간 이후
정상적인 사용상태에서 자연 발생한 성능, 기능상의 고장 발생 시	구입 후 10일 이내에 중요한 수리를 요하는 경우	제품교환 또는 구입가 환불	해당없음
	구입 후 1개월 이내에 중요 부품에 수리를 요하는 경우	제품교환 또는 무상수리	
	교환된 제품이 1개월 이내에 중요한 수리를 요하는 경우	구입가 환불	
	교환 불가능 시		
	동일하자에 대하여 수리했으나 고장 재발(4회째) 시	제품교환 또는 구입가 환불	유상수리
	여러 부위의 고장으로 총 4회 수리 받았으나 고장재발(5회째) 시		
	수리 불가능 시		해당없음
	소비자가 수리 의뢰한 제품을 사업자가 분실한 경우	제품교환 또는 구입가 환불	정액 감가상각한 금액에 10%를 가산하여 환불
	수리용 부품을 보유하고 있지 않아 수리가 불가능한 경우		
소비자의 고의, 과실에 의한 성능, 기능상의 고장	수리가 가능한 경우	유상수리	유상수리
	수리용 부품을 보유하고 있지 않아 수리가 불가능한 경우	유상수리에 해당하는 금액 징수 후 제품교환	해당없음
• 천재지변(화재/염해/가스/지진/풍수해/낙뢰 등)에 의한 고장이 발생하였을 경우 • 사용전원의 이상 및 접속기기의 불량으로 인하여 고장이 발생하였을 경우 • 기타 제품 자체의 하자가 아닌 외부 원인으로 인한 경우 • 지정 서비스센터의 수리기사가 아닌 사람이 수리 또는 개조하여 고장이 발생하였을 경우		유상수리	유상수리

반품 및 환불 규정

* 제품 수령 후 7일 이내 반품 및 교환이 가능합니다.
* 반품을 원하실 경우, 제품 포장을 개봉하지 않은 상태에서 반송하여 주십시오. 제품 포장을 개봉한 제품은 반품이 불가합니다(단, 제품 불량으로 인한 반품의 경우는 제외).
* 제품 반송 시 반송 비용은 고객님께서 부담하셔야 합니다(단, 제품 불량으로 인한 반품의 경우는 제외).